Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A method for forming a semiconductor structure, the method comprising:

forming a strained semiconductor layer over a substrate comprising a compositionally graded layer, the strained semiconductor layer comprising at least one group IV element;

depositing a screening layer over at least a portion of a top surface of the strained semiconductor layer;

introducing dopants into the semiconductor structure through the screening layer, and

processing the semiconductor structure to form a CMOS device at least partially thereover, the CMOS device having a channel through the strained semiconductor layer.

2. (Original) The method of claim 1 wherein the substrate comprises at least one of silicon and germanium.

3. (Original) The method of claim 1 wherein the strained semiconductor layer is tensilely strained.

4. (Original) The method of claim 3 wherein the strained semiconductor layer comprises tensilely strained silicon or tensilely strained silicon-germanium alloy.

5. (Original) The method of claim 1 wherein the strained semiconductor layer is compressively strained.

6. (Original) The method of claim 5 wherein the strained semiconductor layer comprises compressively strained germanium or compressively strained silicon-germanium alloy.

7. (Original) The method of claim 1 wherein the strained layer has a thickness ranging from about 50 Å to about 1000 Å.

8. (Original) The method of claim 7 wherein the thickness of the strained layer does not exceed about 300 Å.

9. (Original) The method of claim 8 wherein the thickness of the strained layer does not exceed about 200 Å.

10. (Original) The method of claim 7 wherein the thickness of the strained semiconductor is substantially unchanged following the deposition of the screening layer.

11. (Cancelled).

12. (Original) The method of claim 1 wherein the substrate comprises a relaxed semiconductor layer disposed underneath the strained semiconductor layer.

13. (Currently amended) The method of claim 12 wherein the ~~substrate further comprises a~~ compositionally graded layer is disposed underneath the relaxed semiconductor layer.

14. (Original) The method of claim 13 wherein the graded layer comprises at least one of a group II, a group III, a group IV, a group V, and a group VI element.

15. (Original) The method of claim 14 wherein the graded layer comprises at least one of silicon and germanium.

16. (Original) The method of claim 15 wherein the graded layer is graded to a concentration of greater than about 10% germanium.

17. (Original) The method of claim 13 wherein the thickness of the graded layer ranges from about 0.5 μm to about 10.0 μm.

18. (Original) The method of claim 1 wherein the step of depositing the screening layer comprises chemical vapor deposition.

19. (Original) The method of claim 19 wherein the screening layer comrpises an oxide layer.

20. (Original) The method of claim 19 wherein the screening layer is selected from the group consisting of:

silicon dioxide, silicon oxynitride, silicon germanium oxide, and germanium oxide.

21. (Original) The method of claim 1 wherein the screening layer has a thickness ranging from about 20 Å to about 300 Å.

22. (Previously presented) The method of claim 1 wherein the screening layer affects the introduction of dopants into at least a portion of the structure by at least one of scattering dopants and reducing energy of the dopants.

23. (Original) The method of claim 22, further comprising:

subjecting the structure to a thermal anneal, wherein the screening layer hinders out-diffusion of the dopants from at least a portion of the substrate.

24. (Original) The method of claim 1, further comprising, prior to depositing a screening layer, growing an oxide layer over the portion of the top surface of the strained semiconductor layer.

25. (Original) The method of claim 24 wherein the oxide layer is grown by a rapid thermal oxidation.

26. (Original) The method of claim 25 wherein the thickness of the oxide layer ranges from about 5 Å to about 30 Å.

27-66. (Cancelled)

67. (New) A method for forming a semiconductor structure, the method comprising:

providing a substrate comprising an insulating layer;

forming a strained semiconductor layer over the insulating layer, the strained semiconductor layer comprising at least one group IV element;

depositing a screening layer over at least a portion of a top surface of the strained semiconductor layer;

introducing dopants into the semiconductor structure through the screening layer, and

processing the semiconductor structure to form a CMOS device at least partially thereover, the CMOS device having a channel through the strained semiconductor layer.

68. (New) The method of claim 67 wherein the substrate comprises at least one of silicon and germanium.

69. (New) The method of claim 67 wherein the strained semiconductor layer is tensilely strained.

70. (New) The method of claim 69 wherein the strained semiconductor layer comprises tensilely strained silicon or tensilely strained silicon-germanium alloy.

71. (New) The method of claim 67 wherein the strained semiconductor layer is compressively strained.

72. (New) The method of claim 71 wherein the strained semiconductor layer comprises compressively strained germanium or compressively strained silicon-germanium alloy.

73. (New) The method of claim 67 wherein the strained layer has a thickness ranging from about 50 Å to about 1000 Å.

74. (New) The method of claim 73 wherein the thickness of the strained layer does not exceed about 300 Å.

75. (New) The method of claim 73 wherein the thickness of the strained layer does not exceed about 200 Å.

76. (New) The method of claim 73 wherein the thickness of the strained semiconductor is substantially unchanged following the deposition of the screening layer.

77. (New) The method of claim 67 wherein the step of depositing the screening layer comprises chemical vapor deposition.

78. (New) The method of claim 77 wherein the screening layer comrpises an oxide layer.

79. (New) The method of claim 77 wherein the screening layer is selected from the group consisting of silicon dioxide, silicon oxynitride, silicon germanium oxide, and germanium oxide.

80. (New) The method of claim 67 wherein the screening layer has a thickness ranging from about 20 Å to about 300 Å.

81. (New) The method of claim 67 wherein the screening layer affects the introduction of dopants into at least a portion of the structure by at least one of scattering dopants and reducing energy of the dopants.

82. (New) The method of claim 81, further comprising:

subjecting the structure to a thermal anneal, wherein the screening layer hinders out-diffusion of the dopants from at least a portion of the substrate.

83. (New) The method of claim 67, further comprising, prior to depositing a screening layer, growing an oxide layer over the portion of the top surface of the strained semiconductor layer.

84. (New) The method of claim 83 wherein the oxide layer is grown by a rapid thermal oxidation.

85. (New) The method of claim 84 wherein the thickness of the oxide layer ranges from about 5 Å to about 30 Å.